**Version With Markings to Show Changes Made**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**NON-PROVISIONAL APPLICATION FOR U.S. LETTERS PATENT UNDER 37 C.F.R. §1.53(b)**

Title: **SENSOR ARM FOR COMBINE HEADER**

Inventor: **Leo A. Metzger**
4127 Dungan Road
~~Circleview~~ Circleville, Ohio 43114

Attorney:

James J. Hill, Esq.
Registration No. 24,287

Correspondence Address:
EMRICH & DITHMAR
300 South Wacker Drive
Suite 3000
Chicago, IL 60606
Telephone 312.663.9800
Case No. 1

A

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

1. In an agricultural machine having an adjustable platform supported by the machine and a control system for setting ~~the~~ an operating height of said platform relative to the ground, said control system including a sensor responsive to ~~the~~ an angular position of a shaft and generating a signal representative of said operating height, ~~an improved~~ a sensor arm coupled to said shaft and comprising an operating portion for contacting the ground and being curved at the segment of said operating portion adjacent said shaft, such that the distance between ~~the~~ a center of rotation of said shaft and the point at which said sensor arm contacts the ground decreases as the operating height of said platform is decreased.

3. The apparatus of claim 2 wherein said sensor arm includes a forward curved portion extending from a location adjacent said shaft rearwardly to a transition region and having a first radius of curvature, and a second curved portion rearward of said first curved portion and extending from said transition region to a location adjacent the rear end of said operational region of said sensor shaft and having a second radius of curvature.

A

6. In an agricultural machine having a platform carried by the machine, and a control system for setting ~~the~~ an operating height of said platform relative to the ground, said control system including a sensor mechanism comprising a member rotatable about an axis, a sensor arm mounted to said rotatable member and including an operating portion for contacting the ground, characterized in that a forward segment of said operating portion is substantially continuously curved whereby when said platform is set at a lower operating height, the distance between said rotatable member and the point at which said arm contacts the ground continuously decreases as the operating height of said platform is decreased.

7. The apparatus of claim 6 wherein said curved portion of said sensor arm comprises a first curved portion having a substantially constant first radius of curvature, and said sensor arm includes a second curved segment rearward of said first curved segment and characterized in having a second radius of curvature, said second radius of curvature being greater than said first radius of curvature, whereby the magnitude of response of said control system is greater for lower operating heights of said platform than is the response magnitude for higher operating heights of said platform.



A

8. The apparatus of claim 2 wherein the curvature of said sensor arm is such that an angular displacement of said shaft increases for a given height of ground rise as the operating height of said platform decreases.

9. The apparatus of claim 6 wherein said sensor arm has a curvature of said operating portion thereof which is such that an angular displacement of said shaft increases for a given height of ground rise as the operating height of said platform decreases.

H:\Word\EKR\Metzger\Sensor Arm 1\Patent\Marked-Up Copy With Corrections.wpd



A

12" RUNNING HEIGHT

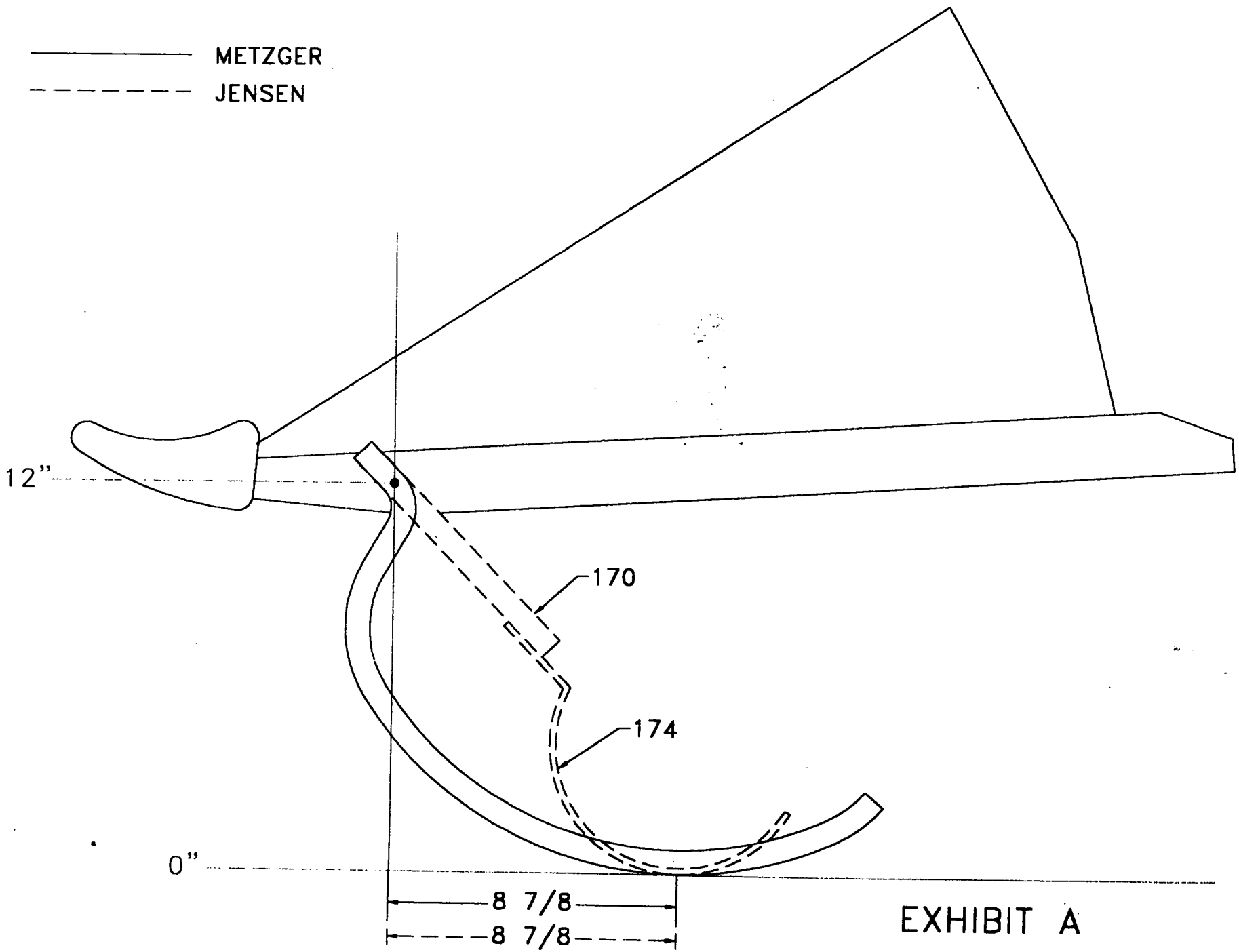


EXHIBIT A

A

# 6" RUNNING HEIGHT

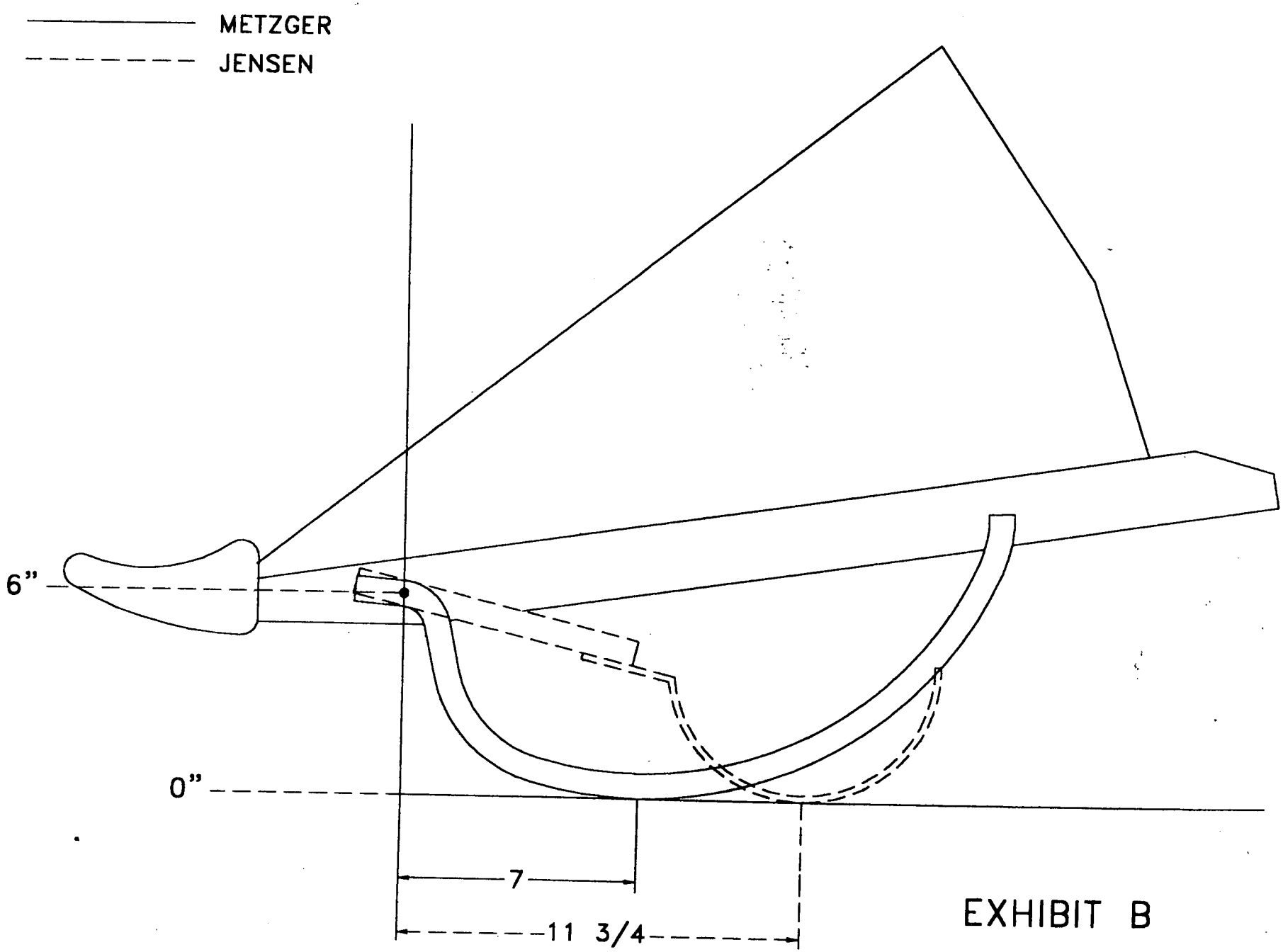


EXHIBIT B

A

# 4" RUNNING HEIGHT

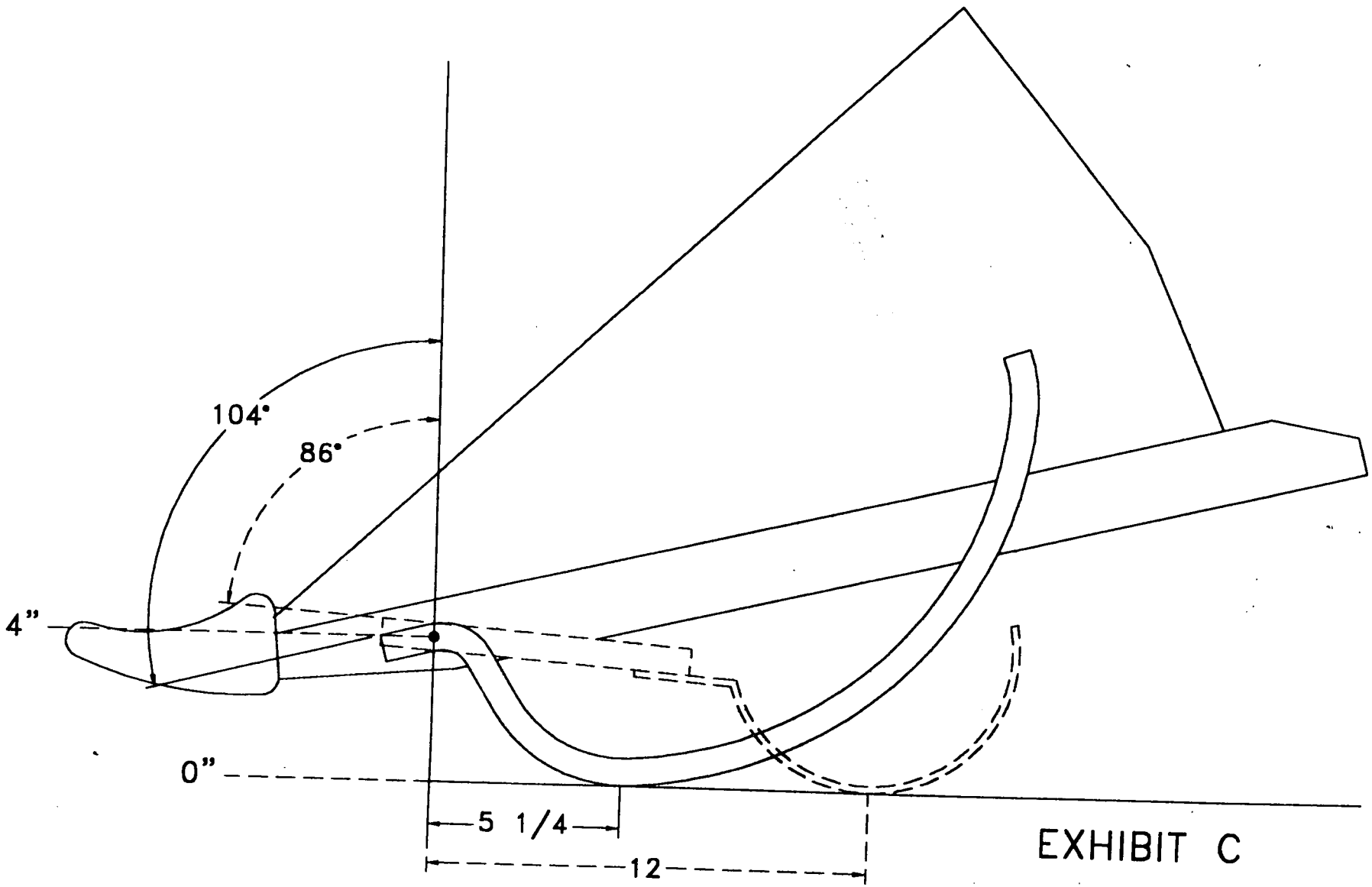


EXHIBIT C

# 4" RUNNING HEIGHT
# WITH 2" RISE IN TERRAIN

——— METZGER

– – – – – – – JENSEN

* DIMENSIONS TAKEN FROM FIG. C.

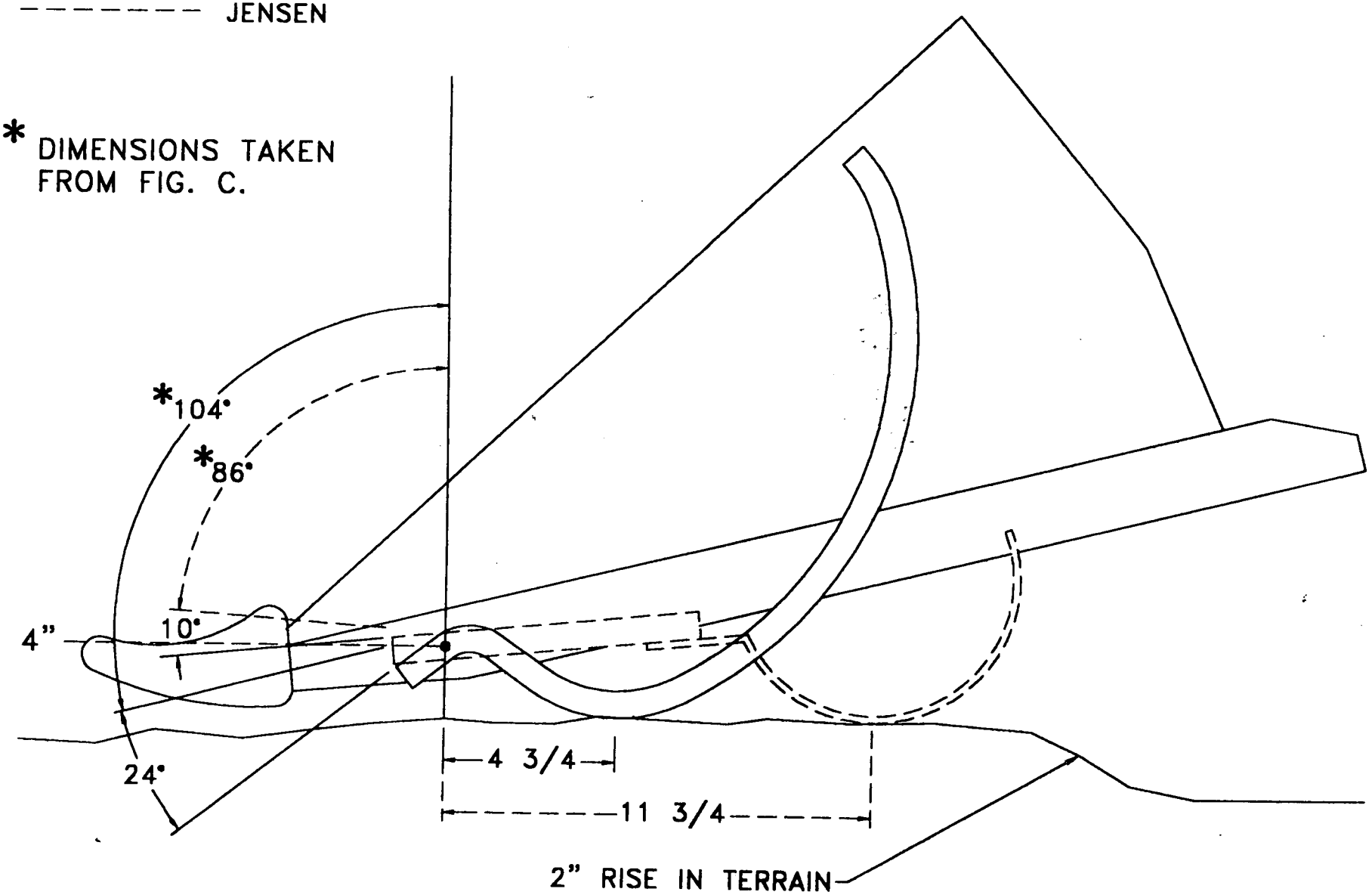


EXHIBIT D

D

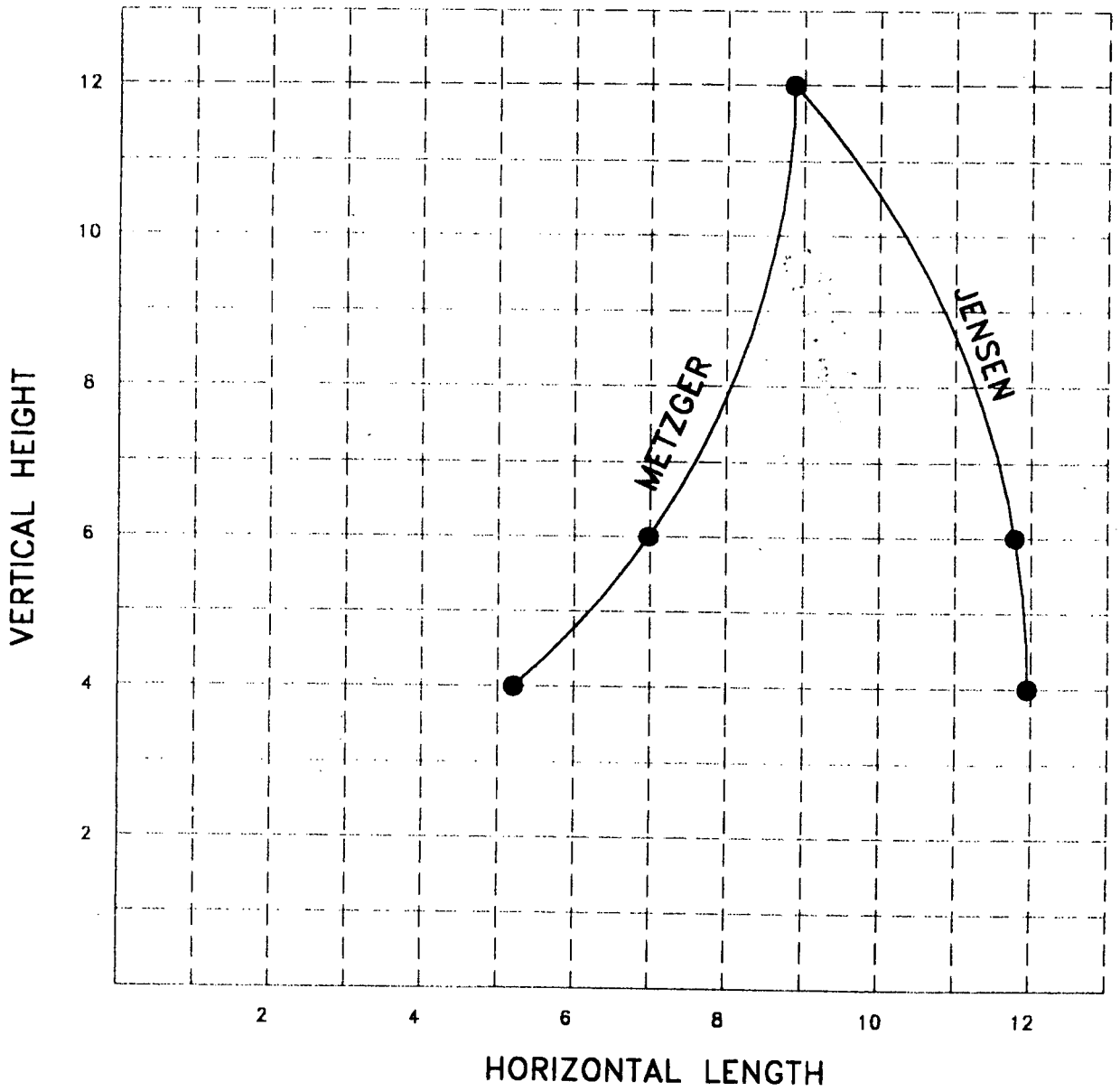
VERTICAL HEIGHT
12
10
8
6
4
2
2
4
6
8
10
12
HORIZONTAL LENGTH
METZGER
JENSEN

EXHIBIT E

4

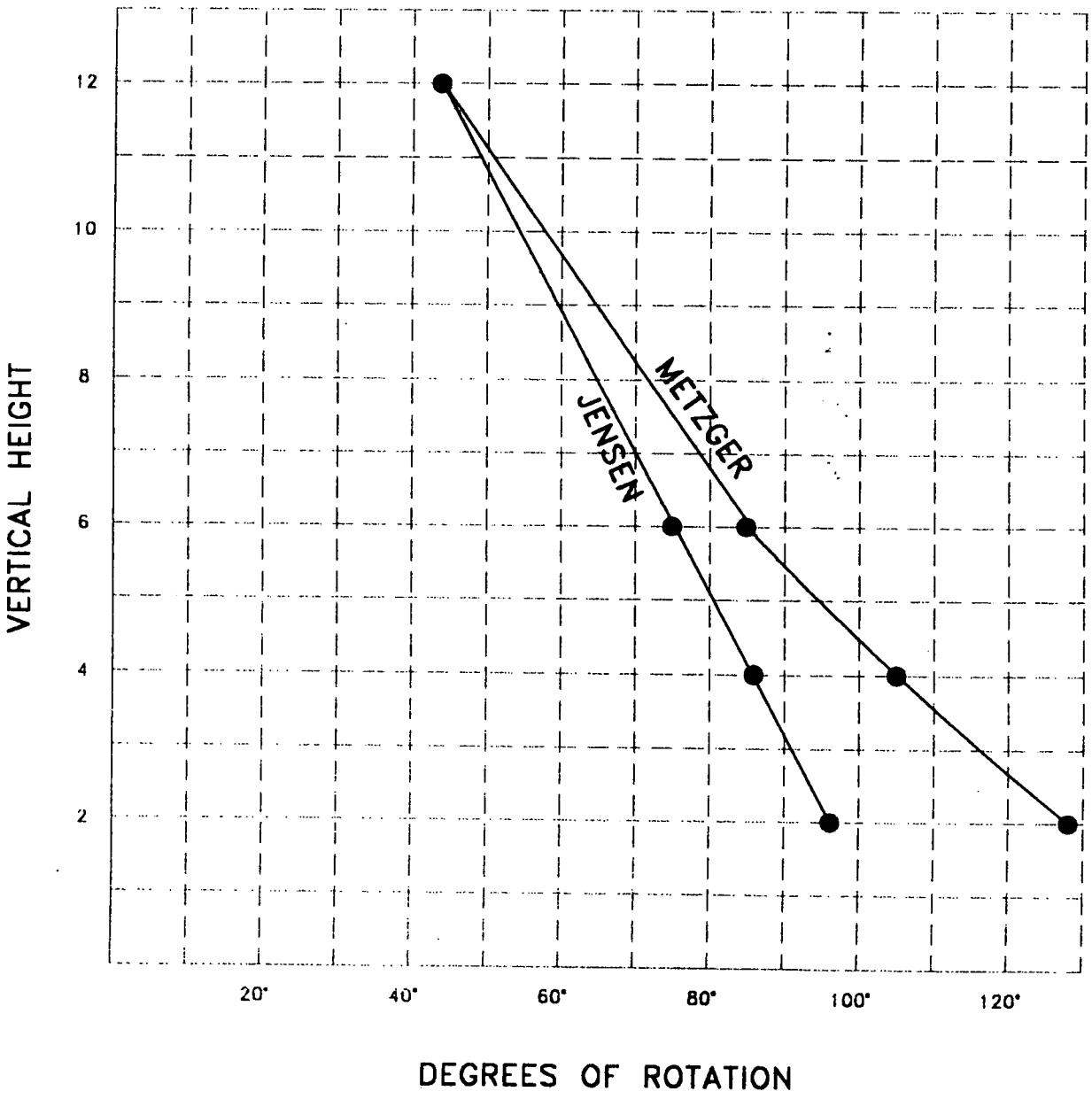
VERTICAL HEIGHT
12
10
8
6
4
2
METZGER
JENSEN
20°
40°
60°
80°
100°
120°
DEGREES OF ROTATION

EXHIBIT F

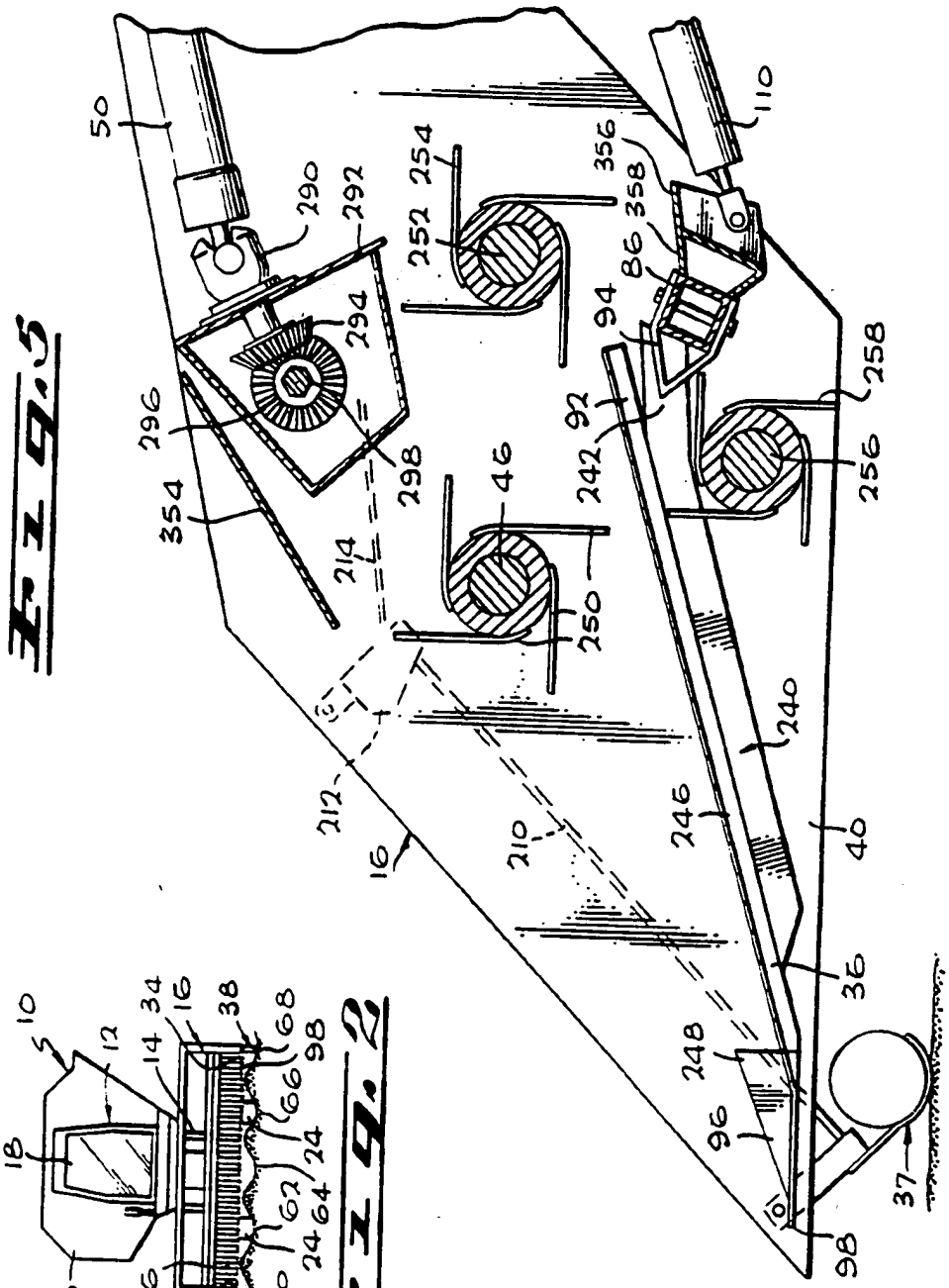
50
290
292
294
296
298
354
214
252
254
46
250
212
16
210
110
356
358
86
94
92
242
258
256
240
246
40
36
248
96
101
98
37

Fig. 5


10
12
14
34
16
38
68
98
66
24
62
64
18
20
36
60
32
37

Fig. 2